



APPENDIX 6 - AUXILIARY POWER UNITS FOR REDUCING IDLING EMISSIONS FROM HEAVY-DUTY VEHICLES

Below is additional information pertaining to the Auxiliary Power Units (APUs) for Reducing Emissions from Heavy-Duty Vehicles Category for AQMD's FY 2005 Moyer Program. All information in RFP 2006-01 and this Appendix apply. For additional detail regarding this program category, refer to the California Air Resources Board's (CARB's) 2003 Moyer Program Guidelines¹. In the case of any conflict between CARB guidelines and AQMD criteria, the more stringent criteria will prevail. Also, it is the Applicant's responsibility to check with AQMD's Moyer Program web page for program clarifications, changes and updates. This page may be accessed by clicking the "Clean Air Technologies" link on AQMD's home page at http://www.aqmd.gov/tao/implementation/carl_moyer_program_2001.html.

INTRODUCTION

Heavy-duty vehicles (HDVs) are utilized in line-haul service carrying goods across the state and throughout the nation. The majority of all HDVs are powered by diesel engines and it is not uncommon for a line-haul truck to accrue 100,000 miles, or more, annually. The engines in these vehicles also operate at idle conditions for a significant amount of time, usually to keep the engine and fuel warm, especially in cold weather, or to heat or cool the truck's cab/sleeper compartment. Since heavy-duty (HD) diesel engines do not operate at optimum efficiency at idle conditions, extended engine idling results in increased emissions and fuel consumption. Although technologies for reducing idling emissions from HD trucks are commercially available, relatively high initial costs have prevented these idling reduction strategies from being more widely utilized.

The AQMD's Moyer Program provides incentives to reduce emissions from truck idling by encouraging the purchase and installation of alternative idling reduction technologies. These technologies do not only reduce idling emissions from heavy-duty trucks, but can also result in fuel savings and reduced maintenance costs to truck operators, as detailed below.

APUs provide a cost-effective means to reduce idling emissions from HD diesel trucks. However, because of the attractive life-cycle cost of this technology, the Moyer Program cannot pay for the full cost of an APU. Fuel savings to the truck operator who purchases an APU offer a return on the investment that eventually offsets the initial capital cost of the APU. Thus, the role of this incentive program is to promote the introduction of the technology in the near term. The payback period and the amount of fuel savings depend on the total cost of the unit, actual idling hours, fuel prices, and

¹ Be sure to visit <http://www.arb.ca.gov/msprog/moyer/moyer.htm> for the latest approved ARB Moyer Program Guidelines.

maintenance costs. Therefore, a maximum amount of \$1,600 per diesel APU, and \$3,100 per alternative fuel or electric motor, is allowed in this project category.

PROGRAM GUIDELINES

Highlights for 2005

- Cost-effectiveness calculations will now be based on particulate matter (PM₁₀) , oxides of nitrogen (NO_x), and reactive organic gases (ROG). The new formula² established by CARB is provided below:

Annualized Cost (\$/year)

NO_x reductions + 10(combustion PM₁₀ reductions) + ROG reductions (tons/year)

AQMD staff will calculate the NO_x, PM and ROG emissions reductions and apply the new formula during the evaluation process.

- Applicants **must** provide vendor quotes with their application to document the incremental cost of implementing the proposed technology. This will require documentation of both the baseline and low-emission project costs. Applicants can request funding up to the full differential cost between a low-emission vehicle/engine/equipment option and its new non-low emission equivalent; however, less may actually be awarded, depending on the results of the cost-effectiveness evaluation.
- Applicants must also provide documentation that justifies the activity level projected for the vehicles (i.e., mileage logs, hour-meter records, business records, fuel receipts, etc.). Projects that request a fuel-based calculation must provide fuel receipts for the past two years to justify the fuel consumption activity projected for the vehicle.
- All projects must be operational within twelve (12) months of contract execution.
- The minimum project life is reduced from five (5) to three (3) years.

Project Eligibility Criteria

The following criteria are provided specifically for APUs that will be installed on a HD truck to reduce the truck's idling emissions. Other idling reduction strategies can be

² CARB's new formula also includes "non-combustion PM". AQMD will include this as appropriate, once more information (i.e., emission factors) become available from CARB.

evaluated on a case-by-case basis. In general, APU projects that reduce emissions from HDVs shall meet the following criteria:

- Eligible projects must provide at least 15 percent NO_x emission benefit compared to baseline idling NO_x emissions.
- The engine used in the APU must meet current emission standards and be certified by the ARB for sale in California. Compliance with all applicable durability and warranty requirements is also required.
- An hour-meter must be installed with the APU to track operation. Operational data from this hour-meter must be provided to AQMD as part of the reporting requirements discussed below.
- The default load factor for the internal combustion (IC) engine used in an APU will be the maximum power rating of the engine, unless another load factor is proposed and supported by proper documentation.
- Funded projects must operate for a minimum of three (3) years. Longer project lives may be approved by CARB and AQMD on a case-by-case basis.
- Emission benefits must be based on the vehicle's idling time that occurs in the South Coast Air Basin.
- The actual installation cost of the APU, including installation of an hour-meter, up to a maximum of \$1,600 per diesel APU installation, and a maximum of \$3,100 per alternative fuel, electric motor, or fuel cell APU installation may be funded, whichever is less.
- Projects must meet a cost-effectiveness criterion of \$13,600 per ton of emissions (NO_x+ROG+10*PM) reduced, subject to the maximum funding limitations detailed above.
- NO_x reductions obtained through this program must not be required by any existing regulations, memoranda of agreement/understanding, or other legally binding documents.

Evaluation Methodology

AQMD staff will evaluate all submitted proposals and make recommendations to the Governing Board for final selection of project(s) to be funded. Proposals will be evaluated based on the cost-effectiveness of emissions (NO_x + ROG + 10*PM) reduced on an equipment-by-equipment basis, as well as a project's "disproportionate impact" evaluation (discussed below). Be aware of the possibility that due to program priorities and/or funding limitations, project applicants may be offered only partial funding, and not all proposals that meet minimum cost-effectiveness criteria may be funded.

In compliance with AB 1390, Firebaugh, the FY 2005 Moyer Program requires that at least 50 percent of the funds be spent in areas that are disproportionately impacted by air pollution. CARB has issued broad goals and left the details of how to implement this requirement to each air agency. In the South Coast Air Quality Management District, the disproportionately impacted areas are defined by a weighted formula that includes poverty level, particulate matter (PM) exposure and toxic exposure. The process is described below:

1. All projects must qualify for the Moyer Program by meeting the cost-effectiveness limits established in the RFP.
2. All projects will be evaluated according to the following criteria to qualify for Disproportionate Impact funding:
 - a. Poverty Level: All projects in areas where at least 10 percent of the population falls below the Federal poverty level based on the year 2000 census data, will be eligible to be included in this category, and
 - b. PM Exposure: All projects in areas with the highest 15 percent of PM concentration will be eligible to be ranked in this category. The highest 15 percent of PM concentration is 46 micrograms per cubic meter and above, on an annual average, or
 - c. Toxic Exposure: All projects listed in the Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES II) report³ as having a cancer risk of 1,000 in a million and above will be eligible to be ranked in this category.

Data for the poverty level and PM and toxic exposures were obtained from the U.S. Census, the 1998 AQMD monitoring data and Mates II study respectively.

3. Fifty percent of the \$18.6 million available for this RFP will be allocated among proposals located in disproportionately impacted areas. If the funding for disproportionately impacted areas is not exhausted with the outlined methodology, then staff will return to the Governing Board for direction. If funding requests exceed 50 percent of the total available funding, then all qualified projects will be ranked based on their disproportionate impact. Each project will be assigned a score that is comprised of 40 percent for poverty level, and 30 percent each for PM and toxic exposures. Proposals with the highest scores will receive funding until 50 percent of the total funding is allocated.

All the proposals not awarded under the fifty percent disproportionate impact funding analysis will then be ranked according to cost-effectiveness, with the most cost-effective project funded first and then in descending order for each

³ Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES II), SCAQMD, March 2000.

funding category until the remainder of the Moyer Funds are exhausted. Some projects that exceed the cost-effectiveness ceiling may receive partial funding, depending on their rankings.

Eligible Costs

The actual installation cost of the APU, including installation of an hour-meter, up to a maximum of \$1,600 per diesel APU installation, and a maximum of \$3,100 per alternative fuel, electric motor, or fuel cell APU installation may be funded, whichever is less. Also, the cost of the hour-meter may be included in the project cost for purposes of determining an award. Of course, the overall program cost-effectiveness limit of \$13,600 per ton of NOx reduced applies, and may reduce funding awards further.

Reporting and Monitoring

All participants in the Moyer Program are required to keep appropriate records during the full life of the project (minimum of 3 years). Project life is the number of years used to determine the cost-effectiveness. All equipment must operate in the AQMD for this full project life. Records must be retained and updated throughout the project life and made available for AQMD inspection. The AQMD may conduct periodic reviews of each project's operating records to ensure that the engine is operated as stated in the program application. Annual records must contain, at a minimum, actual hours of operation or estimated amount of fuel used per year. The type of records required to be maintained over the life of the project must be consistent with the calculation approach used, either one based on fuel consumption or hours of operation. Annual hours of operation are acceptable for an engine equipped with a non-reset hour-meter; otherwise fuel receipts must be provided to demonstrate fuel consumption. For electrification projects, the applicant must have documentation of payment to the local utility company for power installation.

PROJECT TYPES

Auxiliary Power Units

Auxiliary power units (APUs) are self-contained power generating devices, typically packaged with a small IC engine, of 20 hp or less, that can be coupled with a generator and heat exchanger to generate electricity and heat. APUs are usually installed on the truck chassis outside the truck cab to provide power for the truck's accessory loads and to keep the engine warm when the truck is parked. This allows the operator to refrain from idling the truck main engine. The extent of labor involved in the installation of an APU on the truck depends on the configuration of the truck engine and chassis and the plumbing of its heating/cooling system. Heating and cooling of the cab compartment are accomplished through either dedicated equipment supplied with the APU or through the truck's existing heating and cooling system. APUs are commercially available and meet most of the power needs of truck operators.

Direct-Fired Heaters

Direct-fired heaters for truck heating applications are devices that use the combustion heat of a small IC engine to provide heat directly to the truck's cab/sleeper area through the use of a small heat exchanger. Because it is designed to provide heat directly from a combustion flame, the heating efficiency of these units is higher than that obtained through the truck's engine due to reduced mechanical losses and fuel consumption. Two primary limitations of direct-fired heaters for this application are that they cannot provide cooling and that they draw on the truck's battery power during operation. Direct-fired heater technologies continue to evolve, but they have not gained widespread commercial acceptance.

Thermal Storage/Direct-Fired Heaters

Thermal storage systems provide both heating and cooling for the cab/sleeper area. This technology uses the heat of transformation associated with material phase change to provide heating and cooling to the cab/sleeper area. However, the technology faces several drawbacks: 1) it cannot provide heat to the engine unless a direct-fired heater is also incorporated with the thermal storage system, 2) it cannot provide cooling at night unless the truck's air conditioner was used in the daytime, and 3) it uses the truck's battery power.

Truck Stop Electrification

Another strategy for reducing truck idling is electrification of truck stops or truck rest areas where trucks park. This strategy requires the installation of charging infrastructure at truck stops and rest areas and the retrofit of trucks with components such as engine block heater, fuel heater, and electric heater for cab/sleeper areas. Enabling technologies for an electrification strategy are commercially available. In addition, new and improved technologies are continually developing that may offer significant emission reduction benefit. Currently, these options for cab heating/cooling, electricity, and telephone and internet service, are less intrusive and can be used by any truck with the use of a window connection.

EMISSION REDUCTION AND COST-EFFECTIVENESS

Emission Standards and Default Factors

For the purpose of calculating emission reduction benefits for the CMP, idling emission rates for HD diesel trucks from CARB's inventory model shall be used. Currently, commercially available technology for reducing truck idling emissions makes use of a small off-road engine as the power unit for supplying heating and cooling needs to the truck/cab and, in some cases, electricity to power the truck accessory loads. In these cases, the emission level for the replacement engine corresponds to the emission

standards that govern the off-road engine. Table 6.1 lists the existing and future emission standards for small off-road diesel engines that are likely to be employed in APU idling reduction devices. The information is extracted from Table 2.2 in Appendix 2 – Off-Road Equipment, which provides the applicable emission standards for off-road engines.

Table 6.1 – Emission Standards for 2000 -2004 Model Year Off-Road Compression Ignition Engines rated at 0 – 37 kW (0 - 50 hp)

Pollutants	Power Rating < 8 kW (11 hp)	Power Rating 8 < kW<19 (11<hp<25)	Power Rating 19 < kW<37 (25<hp<50)
NOx+NMHC	10.5 g/kW-hr (7.8 g/bhp-hr)	9.5 g/kW-hr (7.1 g/bhp-hr)	9.5 g/kW-hr (7.1 g/bhp-hr)
PM	1.0 g/kW-hr (0.75 g/bhp-hr)	0.8 g/kW-hr (0.6 g/bhp-hr)	0.8 g/kW-hr (0.6 g/bhp-hr)

Emission Reduction Calculation Discussion

The emission reduction benefit represents the difference in the emission level of a baseline idling engine and the APU. The emission level is calculated by multiplying an emission factor by an activity level, and, for the APU, by a load factor.

Since emission standards for small off-road CI engines are established in terms of NOx+NMHC, the NOx *fraction* must be determined. On average, the NOx fraction in the NOx+NMHC certified emission values from diesel engines range from 90 to 98 percent. In contrast, for natural gas-fueled engines, the NOx fraction is approximately 80 percent of the combined NOx+NMHC certified emission values. To determine NOx emissions, the certification NOx+NMHC emission standard for an engine is multiplied by the appropriate NOx fraction provided in Table 6.2 below⁴.

Table 6.2 – NOx Fraction Default Values

Diesel Engines	Alternative Fuel Engines
0.95	0.80

NOx idling emission factors are included in the emission inventory models, which accounts for excess in-use NOx emissions from engines under the settlement agreement. The average idling NOx emission factors for heavy heavy-duty diesel (HHDD) trucks (33,000 + lbs GVWR) are 81 g/hr of NOx emissions and 1.0 g/hr of PM emissions according to ARB's updated emission inventory model. These values,

⁴ NOx fractions should only be applied the combined NOx + HC emission standards, in order to eliminate the HC portion of the emissions (for NOx emission reduction purposes).

summarized in Table 6.3, are to be used as default emission factors for calculating diesel truck idling emissions for the purpose of the Carl Moyer Program.

Table 6.3 – Default Idling Emission Factors for HHDD Trucks

NOx (g/hr)	PM (g/hr)
81	1.0

Cost-Effectiveness Calculation Discussion

REMINDER:

Cost-effectiveness calculations will now be based on particulate matter (PM10), oxides of nitrogen (NOx), and reactive organic gases (ROG). The new formula established by CARB is provided below. **The calculation examples provided in the RFP**

Appendices do not yet reflect this change. AQMD staff will calculate the NOx, PM and ROG emissions reductions and apply the new formula during the evaluation process.

Annualized Cost (\$/year)

NOx reductions + 10(combustion PM10 reductions) + ROG reductions (tons/year)

The discussion below pertains to the determination of NOx-based cost-effectiveness. A similar approach is used for ROG and PM, and the above formula is used to determine the combined cost-effectiveness for the program funding award and ranking.

For APU projects, only the actual installation cost of an eligible new APU is eligible for CMP funding. The maximum installation cost funded by the CMP shall not exceed \$1,600 for diesel powered APUs and \$3,100 for alternative fuel APUs⁵. In addition, the project must meet the \$13,600 per ton of NOx reduced cost-effectiveness criterion. Only the installation cost of the APU is to be used in the cost-effectiveness calculation. That amount is to be amortized over the expected project life (at least three years) and with a discount rate of 3 percent.

The amortization formula (given below) yields a capital recovery factor (CRF), which, when multiplied by the initial capital cost, gives the annual cost of a project over its expected lifetime. CRFs are listed in Table 6.4 below.

$$\text{Capital Recovery Factor (CRF)} = [(1 + i)^n (i)] / [(1 + i)^n - 1]$$

where, $i =$ discount rate (3%)
 $n =$ project life (at least 3 years)

⁵ This limit includes the cost of the hour-meter.

**Table 6.4 – Capital Recovery Factors (CRF) for Various Project Lives
At 3 Percent Discount Rate.**

Project Life	CRF
3	0.354
4	0.269
5	0.218
6	0.185
7	0.161
8	0.142
9	0.128
10	0.117
11	0.108
12	0.100
13	0.094
14	0.089
15	0.084
16	0.080
17	0.076
18	0.073
19	0.070
20	0.067

In this year's calculations PM and ROG will be included according to the new formula.

Example – APU Project (Calculations based on Fuel Consumption and Idling Hours)

A truck operator proposes to purchase an APU, powered by a certified 7.5 kilowatt (10 horsepower) engine, to be installed on a heavy-duty truck to reduce its engine idling hours. This vehicle idles 1,000 hours per year in the South Coast Air Basin. The load factor for the APU is documented to be 90 percent of rated power and the APU would substitute for up to 80 percent of the truck's idling time. The installation cost of the APU on the truck is \$1,400.

Emission Reduction Calculation

Baseline Truck NO_x Idling Emission Factor:	81 g/hr (from Table 6.3)
APU NO_x+NMHC Emission Standard:	10.5 g/kW-hr (from Table 6.1)
APU NO_x Emissions (Apply Table 6.2 Fraction):	$0.95 \times 10.5 = 10$ g/kW-hr
Annual Idling Hours in California:	1,000 hours
Power Rating:	7.5 kW
Load Factor:	90%
APU Idling Substitution Rate:	80%
Conversion factor:	1 ton = 907,200g

Since 80 percent of idling load is attributable to the APU, 20 percent of actual idling load is still carried out by the truck engine. Thus, the hourly NOx emission reduction is:

$$81 \text{ g/hr} - [(0.20)(81 \text{ g/hr}) + (0.80)(10 \text{ g/kW-hr})(7.5 \text{ kW})(0.90)] = 10.8 \text{ g/hr}$$

Annual emissions reduction is:

$$10.8 \text{ g/hr} * 1000 \text{ hours / year} * \text{ton} / 907,200 \text{ g} = \mathbf{0.012 \text{ tons/year NOx emissions}}$$

Cost and Cost-Effectiveness Calculations

REMINDER: USE NEW FORMULA ON PAGE 2.

The annualized cost is based on the installation cost of the APU, the expected life of the project (7 years), and the interest rate (3 percent) used to amortize the project cost over the project life. The maximum amount that can be funded by the Moyer Program is determined as follows:

APU Capital Cost⁶	= \$6,000	
APU Installation Cost	= \$1,400	
Moyer Amount Requested	= \$1,400	
Capital Recovery	= 0.161 (from Table 6.4)	
Annualized Cost	= (0.161)(\$1,400)	= \$225/yr
Cost-Effectiveness	= (\$225/year)/(0.012 tons/year)	= \$18,750/ton

The cost-effectiveness for the example is more than the maximum allowable \$13,600 per ton of NOx reduced. In order to meet the \$13,600 per ton cost-effectiveness requirement, this project would only qualify for a portion of the installation cost, to a maximum amount of approximately \$1,014.

This amount is determined by multiplying the maximum allowable cost-effectiveness by the estimated annual emission reductions and dividing by the capital recovery factor: $(\$13,600 * 0.012) / (0.161) = \$1,014$.

⁶ Recall that only the installation cost of the APU is eligible for Moyer Program funding. The APU capital cost is *not* eligible.

CHECK LIST FOR APPLICATION ITEMS - APUs

Be sure the following items are included with your application submittal. Check each applicable item below to indicate inclusion of material.

- ☐ Completed Application Forms.
- ☐ Checklist for Application Items and Eligibility Criteria
- ☐ Project cost information (as described in the RFP), which shall include vendor quotes or other documentation substantiating cost data provided in Application.
- ☐ Contracting Statements (Applications are not eligible without this form.)
 - ☐ Statement of Understanding for Work Statement and Deliverables
 - ☐ Conflict of Interest Statement (as described in the RFP)
 - ☐ Third-Party Application Submittal Authorization (Only required if application is submitted by someone other than the vehicle/equipment owner.)
- ☐ Letter of Agreement from Fuel Provider (if applicable)
- ☐ Co-funding information attachments to the application (if applicable)
- ☐ Certifications and Representations, which can be downloaded from <http://www.aqmd.gov/rfp/index.html>
- ☐ Activity justification documentation (i.e., mileage logs, fuel receipts, etc.).
- ☐ Other (attach explanation)

If you have any questions regarding the application process for Auxiliary Power Units for Reducing Idling Emissions from Heavy-Duty Vehicles, please contact Connie Day, Science & Technology Advancement at (909) 396-3055 by phone, or (909) 396-3252 by fax.

REMINDER: Due Date - The proposer shall submit **six (6) complete copies of the proposal** in a sealed envelope, plainly marked in the upper left-hand corner with the name and address of the proposer and the words "Request for Proposals 2006-01" by no later than **2:00 p.m., on Friday, September 30, 2005**. Postmarks are not accepted. **Faxed or e-mailed proposals will not be accepted.** Proposals must be directed to:

Procurement Unit
South Coast Air Quality Management District
21865 East Copley Drive, Diamond Bar, CA 91765

CONTRACTING STATEMENTS

(NOTE: This form is required, regardless of the status of item 3.)

1. Statement of Understanding for Work Statement and Deliverables

In order to minimize the effort required to complete a Moyer Program Application, AQMD does not require submittal of a Work Statement or Deliverables Summary with the Application. However, the undersigned confirms full understanding that, if awarded funding under the Carl Moyer Program, development and submittal of the detailed work statement, with deliverables and schedule, is a requirement of the contracting process. Recommended projects will not receive funding without these documents. Full details of the Work Statement and Deliverables requirements are detailed in RFP 2006-01. In addition, Baseline and Reduced Emission Vehicle Serial/VIN information must be provided at contract start. By signing below, the applicant acknowledges these requirements.

2. Conflict of Interest Statement

Please address any potential conflicts of interest with other clients affected by actions performed by the firm on behalf of the AQMD in the form of a Conflict of Interest Statement. Although the proposer will not be automatically disqualified by reason of work performed for such firms, the AQMD reserves the right to consider the nature and extent of such work in evaluating the proposal. Conflicts of interest will be screened on a case-by-case basis by the AQMD District Counsel's Office. Conflict of interest provisions of the state law, including the Political Reform Act, may apply to work performed pursuant to this contract. Please provide a Conflict of Interest Statement below. If additional room is necessary, please attach extra pages to this sheet.

3. Third-Party Application (Circle One: **Applicable** **Not Applicable**)

Applicants who are submitting on behalf of a vehicle/equipment owner must provide authorization from the vehicle/equipment owner to act on their behalf for this application process. This authorization shall be provided in the form of a "Letter of Exclusive Authorization", to be attached to this sheet. In addition, the vehicle/equipment owner shall enter into a contract with its authorized applicant, who will sign a contract with AQMD for fulfilling all contract obligations.

Organization:	
Printed Name of Responsible Party:	Title:
Signature of Responsible Party:	Date:

South Coast Air Quality Management District Moyer Program

2005 Application Form for use with RFP#2006-01

<p>Instructions:</p> <ul style="list-style-type: none"> ➤ Read the SCAQMD Moyer Program RFP#2006-01 for instructions and additional important information. ➤ Fill in all applicable sections with ink. Please print legibly. Return application to: Procurement Unit South Coast Air Quality Management District 21865 East Copley Drive Diamond Bar, CA 91765 <p>DEADLINE: Received at SCAQMD by Friday, September 30, 2005 at 2:00PM (no exceptions)</p>	<p>Application # _____</p> <p><i>For internal use.</i></p>
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Applicant Information (☐ Check here if this is a Third-Party Application.)

Company Name		Mailing Address										
Contact Person		City								State		
Title		ZIP					County					
Phone Number	<i>Fill in physical address below if equipment is based at an address that is different from mailing address</i>											
Fax Number		Physical Address										
E-mail Address		City								State		
Cell Number		ZIP					County					
Tax ID (Check One)	<input type="checkbox"/> Federal Employers Identification Number (FEIN)					---						
	<input type="checkbox"/> Individual or Sole Proprietor					---			---			
Name of person who will sign the Funding Agreement: _____ (please print) Title: _____												

Equipment Type (check one): ☐ On-road ☐ Off-road ☐ Locomotive
☐ APU ☐ Ag Pump ☐ Marine ☐ Forklift ☐ TSE ☐ Other: _____

Vehicle / Equipment / Engine Vendor Information (or attach business card)

Contact		Address				
Company		City				
Phone		ZIP				
FAX		E-mail				

TOTAL GRANT REQUEST (for entire project): \$ _____

Please initial each section (See RFP# 2006-01 for additional information and requirements):

The purchase of this low-emission technology is **NOT** required by any local, state, and/or federal rule or regulation.

The definitions of qualifying projects are described in RFP #2006-01. These definitions have been reviewed and this application is consistent with those definitions.

The vehicle/engine will be used within the SCAQMD boundaries (with the emission reduction system operating) for at least the projected usage shown in this application, and no less than 75 percent of the time.

All project applicants must submit documentation that supports the activity claimed in the application (i.e., fuel receipts, mileage logs and/or hour-meter readings covering the last two years). This documentation is attached.

The grant contract language can not be modified without the written consent of all parties. I have reviewed and accepted the contract language.

I understand that an IRS Form 1099 will be issued to me for incentive funds received under the Moyer Program. I understand that it is my responsibility to determine the tax liability associated with participating in the Moyer Program.

I understand that a SCAQMD-funded Global Positioning System (GPS) unit will be installed on vehicles/equipment not operating within SCAQMD boundaries full time. I will submit data as requested and otherwise cooperate with all data reporting requirements. I also understand that the additional cost of the GPS unit will be added to the project cost when calculating cost-effectiveness, though the SCAQMD will pay for this system directly.

I understand that the SCAQMD has the right to conduct unannounced inspections for the full project life to ensure the project equipment is fully operational at the activity level committed to by the contract.

I understand that all emission reductions resulting from funded projects will be retired. To avoid double counting of emission reductions, project vehicles and/or equipment may not receive funding from any other government grant program that is designed to reduce mobile source emissions.

I understand that a tamper proof, non-resettable digital hour meter/odometer must be installed on all vehicles/equipment and that the digital hour meter/odometer will record the hours/miles accumulated within the SCAQMD boundaries. This cost is my responsibility.

Application Statement – Please Read and Sign

All information provided in this application will be used by SCAQMD staff to evaluate the eligibility of this application to receive program funds. SCAQMD staff reserves the right to request additional information and can deny the application if such requested information is not provided by the requested deadline. Incomplete or illegible applications will be returned to applicant or vendor, without evaluation. An incomplete application is an application that is missing information critical to the evaluation of the project.

- ◆ I certify to the best of my knowledge that the information contained in this application is true and accurate.

- ◆ I understand that it is my responsibility to ensure that all technologies are either verified or certified by the California Air Resources Board (CARB) to reduce NOx and PM pollutants.
- ◆ I understand that there may be conditions placed upon receiving a grant and agree to refund the grant (or pro-rated portion thereof) if it is found that at any time I do not meet those conditions and if directed by the SCAQMD in accordance with the contract agreement.
- ◆ I understand that I will be prohibited from applying for any other form of emission reduction credits for Moyer-funded vehicles/engines, including: Emission Reduction Credit (ERC); Mobile Source Emission Reduction Credit (MSERC) and/or Certificate of Advanced Placement (CAP), for all time, from the SCAQMD, CARB or any other Air Quality Management or Air Pollution Control District.
- ◆ In the event that the vehicle(s)/equipment do not complete the minimum term of any agreement eventually reached from this application, I agree to ensure the equivalent project emissions reductions, or to return grant funds to the SCAQMD as required by the contract.
- ◆ I have the legal authority to apply for grant funding for the entity described in this application.
- ◆ I have reviewed and responded to (as appropriate) all three sections of the Contracting Statements form.
- ◆ Applicants who are submitting an application on behalf of a vehicle/equipment owner must provide authorization from the vehicle/equipment owner to act on their behalf for this application process. This authorization is provided in the form of a "Letter of Exclusive Authorization" that is attached to the Contracting Statements form. It is understood that the vehicle/equipment owner shall enter into a contract with its authorized applicant, who will sign a contract with AQMD for fulfilling all contract obligations. A copy of this contract is required prior to execution of a grant funding agreement.

Applicant's Signature

Date

Applicant's Name (please print)

Title

Vehicle / Equipment Information Form (page 1 of 3)
(Please submit separate Information Form for each type of vehicle/equipment)

Vocation(s) (Please list project vehicle/equipment use): _____

Number of Units of this per type): _____

Equipment Type (check one):

☐ On-road ☐ Off-road ☐ Locomotive
☐ APU ☐ Ag Pump ☐ Marine ☐ Forklift ☐ TSE ☐ Other: _____

Project Life (equipment must operate for this full life): _____
(see RFP appendices for default project life values)

Project Area (percent of time project will operate in SCAQMD boundaries): _____

Project Type (check all that apply for this vehicle):

☐ Engine repower ☐ Engine retrofit ☐ Other ☐ New low-emission vehicle
☐ Check here if project vehicle is a stop-and-go vehicle as defined in the RFP.

CARB Load Factor defaults will be used unless documentation to support an alternative load factor is attached. Alternative Load Factor (if desired): _____

Main Location of operation (include cross streets, harbor and berth location or other landmarks)	
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Annual Vehicle/Engine Usage (Activity) Information (Attach supporting documentation to support this activity level and understand that you must achieve this level of activity each year for the entire project life.):

Miles/Year	
Hours/Year	
Gallons/Year	

☐ Check here to indicate that activity verification documentation is attached.

☐ Check here to indicate that proposed engines or equipment are not part of an averaging, banking and trading program (ABT) or other fleet average program.

☐ Check here to indicate an ARB Executive Order for the proposed equipment is attached.

Vehicle / Equipment Information Form (page 2 of 3)
(Please submit separate Information Form for each type of vehicle/equipment)

Existing Vehicle and Main Engine Information (for repowers or retrofits)

Vehicle Make:	Vehicle Model:	Model Year:	GVWR:
Vehicle Identification Number:	Fleet Identification Number:	License Plate:	Odometer:

Main Engine Make:	Main Engine Model:	Model Yr:	Serial Number:	HP: ____ KW: ____	Hour Meter:
Auxiliary Engine Make:	Aux. Engine Model:	Model Yr:	Serial Number:	HP: ____ KW: ____	Hour Meter:

Total number of engines per vehicle/equipment: _____

Existing Engine Fuel Type: ☐ CNG ☐ Diesel ☐ LNG ☐ LPG ☐ Gasoline ☐ Other:

New Vehicle/Engine Information (Provide all available information)

Vehicle Make:	Vehicle Model:	Model Year:	GVWR:
Vehicle Identification Number:	Fleet Identification Number:	License Plate:	Odometer:

Engine Make:	Engine Model:	Model Yr:	Serial Number:	HP: ____ KW: ____	Hour Meter:
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New equipment fuel type: ☐ CNG ☐ Diesel ☐ LNG ☐ LPG ☐ Gasoline ☐ Electricity ☐ Other:

Vehicle / Equipment Information Form (page 3 of 3)

Project Cost Information

Attach vendor quotes, vehicle valuations, repair estimates (including a detailed breakdown of labor cost) and any other documentation needed to justify project costs.

Engine Repower Costs	
1. New Lower-Emission Engine	
2. Total Unique Parts	
3. Other Parts	
4. Labor Cost (if requested)	
5. Existing Engine Rebuild Parts Cost	
6. Existing Engine Rebuild Labor Cost	
Maximum Grant Request =[1+2-(5+6)]	

Engine Retrofit Costs	
1. Engine Retrofit Parts Cost	
2. Engine Retrofit Labor Cost	
Maximum Grant Request (=1+2)	

New Low-Emission Vehicle (LEV)/Equipment Purchase	
1. New LEV Purchase Cost	
2. New non-LEV Purchase Cost	
Maximum Grant Request (=1-2)	

Supporting Eligible Equipment Purchase (i.e., battery pack, installation, TSE, etc. as allowed by ARB and the RFP)	
1. Supporting Eligible Equipment Cost	
Maximum Grant Request (=1)	